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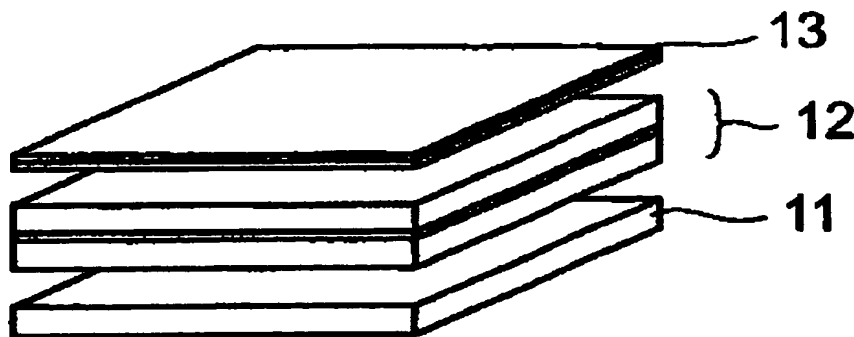
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For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: TRANSFLECTIVE LIQUID CRYSTAL DISPLAY DEVICE



(57) Abstract: A transmissive liquid crystal display device with a reflective mode using external light and a transmissive mode using a light source comprising a light source (11) used in the transmissive mode, a liquid crystal panel (12), arranged over the light source, for operating as display element and a diffusing optical element (13), arranged over the liquid crystal panel, for having a scattering state in the reflective mode and having a non-scattering state in the transmissive mode.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP03/04637A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 602F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, INSPEC, COMPENDEX, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 516 076 A (DAINIPPON INK & CHEMICALS) 2 December 1992 (1992-12-02) page 4, line 3 - line 30; figures 3,4	1-4
X	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 10, 31 August 1998 (1998-08-31) -& JP 10 123559 A (SHARP CORP), 15 May 1998 (1998-05-15) abstract; figures 2,3	1-4

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0516076	A	02-12-1992	JP 3182695 B2	03-07-2001
			JP 4348317 A	03-12-1992
			DE 69228843 D1	12-05-1999
			DE 69228843 T2	26-08-1999
			EP 0516076 A2	02-12-1992
			HK 1008697 A1	07-04-2000
			JP 5273576 A	22-10-1993
			US 5296952 A	22-03-1994
<hr/>				
JP 10123559	A	15-05-1998	NONE	
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